

ON THE KNOWN RECENT SPECIES OF THE GENUS *VANIKORO*,
QUOY & GAIMARD.

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IN working out a species of *Vanikoro* from South Africa I had occasion to consult the monographs which have been published upon this genus, with the result that there seems to be much confusion respecting several of the species, especially in the monographs by the late G. B. Sowerby in Reeve's "Conchologia Iconica," vol. xx, and the "Thesaurus Conchyliorum," vol. v. The last, for the most part, is, in respect of the illustrations, practically a reproduction of the former, the various errors of identification being also continued. Tryon ("Manual of Conchology") in one or two cases has followed Sowerby's erroneous determinations, besides perpetrating several absurd 'lumpings' of species. Sowerby's monograph is almost valueless with respect to the references he gives, as no pages are quoted, and in some cases they are wholly wrong.

The genus *Vanikoro* or *Narica* was first monographed by Récluz, in the Proc. Zool. Soc., 1843, pp. 136-141, in the *Revue Zoologique* for 1844, in Chenu's "Illustrations Conchyliologiques" in 1845, and in the same year in the *Magasin de Zoologie*. The three works appear to have been unknown to or entirely disregarded by Sowerby. The coarseness of many of the figures in the "Conchologia Iconica" gives a totally wrong impression of the sculpture of the species. It is hoped that the following comments may prove of some utility to conchologists, as they are based upon an examination of the actual types of many of the species.

MM. Quoy & Gaimard, the authors of the work on the Mollusca obtained by the "Astrolabe," recognized certain differential characters in the animal of *Sigaretus cancellatus*, Lamk., and appear at one time to have thought of forming a genus for it, as distinct from *Velutina*, in which they eventually placed that species, the designation they suggested for the supposed new genus being *Vanikoro*, which is the name of an island in the Pacific, north of the New Hebrides group.

Since this, however, was not put forth as a distinct genus, it is questionable whether it should now be adopted in preference to *Merria* of Gray, which was published seven years afterwards.¹ As, however, it is commonly in use, it seems advisable to retain it. With regard to the genus *Narica*, which is preferred by Fischer, Crosse, Bergh, and others, under any circumstances it is antedated both by *Merria*, Gray, and *Leucotis*, Swainson. The first publication of *Narica* appears to be in D'Orbigny's work on the Mollusca of Cuba, vol. ii, of

¹ Gray (P.Z.S., 1847, p. 156) adopted *Vanikoro* (*sic*), placing his *Merria* as a synonym.

which pp. 1-112, according to Wiegmann's *Archiv Naturg.*, 1843, p. 116, appeared in 1842. Philippi, however, in his "Handbuch der Conch. und Malacozool.," p. 184, gives 1836 as the date of that work. I think, however, that he was wrong, and Mr. Davies Sherborn, who has to a great extent worked out the dates of Sagra's "Histoire," agrees with me also. The first actual generic description of *Narica* is that given by D'Orbigny in the *Paléont. Franç.*, where he accredits the genus to himself. At the same time, in a footnote, he refers to the three species which he described in the *Moll. Cuba*, in which work he states that M. Reclus (*sic*) has the intention of forming a distinct genus of shells under this denomination, *Narica*. It seems, therefore, that this genus, if adopted, must be assigned to D'Orbigny, and not to Récluz.

In the following list only the original localities are given, and a few in the Museum collection about which there is no doubt. Liénard¹ quotes seven species from the Mauritius, and Martens eleven in his work on the Mollusca of the Mauritius and the Seychelles; but were the shells they had before them the same as identified by me? It will be observed that most of the species of the genus are insular.

The identification of the species of this genus is especially difficult as we get no assistance from colour, for, with the exception of *V. rosea*, which I think is probably only the young of *V. Cuvieriana*, all the species are white. Moreover, also, it is very difficult in such figures as those given by Sowerby and Tryon to convey a correct idea of the surface sculpture.

VANIKORO, Quoy & Gaimard.

Vanikoro, Quoy & Gaimard: *Voy. Astrolabe, Zoologie*, vol. ii, p. 239; name only mentioned, not regarded as a genus (1832); Deshayes, in Lamarck's *Anim. sans Vert.*, 2nd ed., vol. viii, p. 559 (1838).

Merria, Gray: ² *Zool. Beechey's Voy.*, p. 137 (1839). Type, *Sigaretus cancellatus*, Lamk.

Leucotis, Swainson: *Treatise on Malac.*, p. 346 (1840). Type, *Sigaretus cancellatus*, Lamk.

Narica (Reclus), D'Orbigny: in Ramon de la Sagra's *Hist. Cuba, Mollusques*, vol. ii, p. 39 (1842). Type, *Sigaretus cancellatus*, Lamk.

Narica, D'Orbigny: *Paléont. Franç. Terr. Crét.*, vol. ii, p. 170 (1842).

Narica, Récluz: *Rev. Zool.*, 1844, p. 4; *Mag. de Zool.*, 1845, p. 1.

1. VANIKORO CANCELLATA (Chemn.), Lamk. B.M.³

Nerita cancellata, Chemnitz: *Conch. Cab.*, vol. x, p. 304, pl. clxv, figs. 1596-7.

Sigaretus cancellatus, Lamk.: *Anim. s. Vert.*, vol. vi, pt. 2, p. 208.

¹ *Cat. Faune Mal. Maurice*, p. 47 (1877).

² The date of this genus is erroneously given by Melvill & Sykes as 1842, *Proc. Malac. Soc.*, vol. iii, p. 227.

³ B.M. in the margin signifies that the species is in the British Museum.

Merria cancellata, Gray: Zool. Beechey's Voy., p. 137.

Leucotis cancellata, Swainson: Treatise on Malac., p. 346.

Narica cancellata, Récluz: Mag. de Zool., 1845, p. 17, pl. cxix; Bergh, Verhandl. zool.-botan. Gesell., 1896, vol. xlv, p. 202, pls. ii, iii (anatomy).

Vanikoro cancellata, Sowerby: Conch. Icon., vol. xx, pl. i, figs. 1a, 1b; Thes. Conch., vol. v, p. 167, pl. 482, fig. 7; H. & A. Adams, Genera Moll., vol. iii, pl. xli, figs. 5-5c; Tryon, Man. Conch., vol. viii, p. 67, pl. xxix, figs. 60, 61.

Narica Quoyi, Récluz: Proc. Zool. Soc., 1843, p. 137.

Narica Petitiana, Récluz: Proc. Zool. Soc., 1843, p. 138; Rev. Zool., 1844, p. 5; Mag. de Zool., 1845, p. 24, pls. cxxii, cxxiii.

Vanikoro Petitiana, Sowerby: Conch. Icon., fig. 5; Thes. Conch., fig. 18 (both figures with spire too elevated); Tryon, Man. Conch., vol. viii, p. 68, pl. xxix, fig. 64.

Narica cidaris, Récluz: Proc. Zool. Soc., 1843, p. 137; Rev. Zool., 1844, p. 5; Mag. de Zool., 1845, p. 20, pl. cxxi, fig. 1.

Vanikoro cidaris, Sowerby: Conch. Icon., fig. 4; Thes. Conch., vol. v, p. 167, pl. 482, fig. 10.

Hab.—Oomaga Reef and Lizard Island, North Australia, Borneo, Andaman Is., Seychelles Is., Aden (Brit. Mus.); Vanikoro I. (Quoy & Gaimard); Philippine Is. and Lord Hood I. (Cuming); Mauritius (Liénard, Martens); Nicobar Is. (Chemnitz); Persian Gulf and Karachi (Melvill & Standen).

I fail to distinguish any specific differences in *Petitiana* and *cidaris* of Petit. *Vanikoro cancellata* is the largest species of the genus, and characterized by the reticulated surface and very large aperture. It has been figured by H. & A. Adams, who give original figures of the animal and operculum, by Quoy & Gaimard, who first described the anatomy, and whose figure of the animal has been reproduced by Récluz, Fischer, Tryon, Gray, Keferstein, and possibly others. The shell has been figured over and over again in manuals and elementary treatises, and the more detailed anatomy has been given by Bergh. The latter does not, however, venture an opinion upon the systematic position of the genus, but is content with merely referring to the place assigned to it by Fischer.¹

2. VANIKORO LIGATA (Récluz). B.M.

Narica ligata, Récluz: P.Z.S., 1843, p. 138; Rev. Zool., 1844, p. 5; Mag. de Zool., 1845, p. 22, pl. cxxi, fig. 2.

Vanikoro ligata, Sowerby: Conch. Icon., fig. 6; Thes. Conch., fig. 19; Tryon, Man. Conch., fig. 65 only, copy of Sowerby's.

Narica Deshayesiana, Récluz: ² Proc. Zool. Soc., 1843, p. 138; Mag. de Zool., 1845, p. 48, pl. cxxx, figs. 1, 2.

¹ Man. Conch., p. 761.

² Quoted by Melvill & Sykes from the Audaman Is. and by Angas from Watson's Bay, New South Wales.

Vanikoro Deshayesiana, Sowerby: Conch. Icon., figs. 12a, b (too coarsely cancellated); Thes. Conch., vol. v, pl. 482, fig. 17; Tryon, Man. Conch., vol. viii, pl. xxix, fig. 69 (copy of Conch. Icon.).

Narica Blainvilleana, Récluz: Proc. Zool. Soc., 1843, p. 141; Mag. de Zool., 1845, p. 53, pl. cxxxi, fig. 2.

Vanikoro Blainvilleana, Tryon: pl. xxix, fig. 71 (after Récluz).

Vanikoro helicoidea, Sow. (non Récluz): Conch. Icon., fig. 19; Thes. Conch., fig. 20; Tryon, fig. 68.

Hab.—Philippines (*ligata*, type in B.M.); Philippines, Borneo, N.W. Australia (*Deshayesiana*, type in B.M.); Moluccas for *Blainvilleana*.

With this species Tryon has united *V. cidaris*, *Petitiana*, *helicoidea*, *plicata*, *Deshayesiana*, *Blainvilleana*, *Souleyetiana*, and *delicata*. The absurdity of this 'lumping' may be appreciated by comparing the figures in the Mag. de Zool. of *V. helicoidea* and *V. plicata*. I should mention, however, that his figure of *helicoidea*, copied from Sowerby, has nothing whatever to do with the true *helicoidea* of Le Guillou, which is very badly figured by Sowerby and Tryon under the name *Souleyetiana*, Récluz, a very different species. I have already pointed out that *V. cidaris* and *Petitiana* belong to *V. cancellata*. I am inclined, with Tryon, to consider *Deshayesiana* the same as *ligata*, and *N. Blainvilleana* appears to be merely the young state of the same species. The true *helicoidea* is also like *ligata* in some respects, but more narrowly umbilicated, and with the plications almost obsolete on the whole of the body-whorl.

3. VANIKORO HELICOIDEA (Le Guillou). B.M.

Sigaretus helicoideus, Le Guillou: Rev. Zool., 1842, p. 105.

Narica helicoidea, Récluz: Mag. de Zool., 1845, p. 51, pl. cxxxi, fig. 1.

Non *Vanikoro helicoidea*, Sowerby: Conch. Icon., fig. 19; Thes. Conch., fig. 20; Tryon, fig. 68 = *ligata*.

Vanikoro Souleyetiana, Sowerby (non Récluz): Conch. Icon., fig. 11; Thes. Conch., fig. 21, probably; Tryon, fig. 68 (copy of Sowerby).

Hab.—Amboina (Le Guillou).

We have in the Museum the actual shell figured by Sowerby as *V. helicoidea*, and it is undoubtedly a specimen of *ligata*. The true *V. Souleyetiana* is altogether a very distinct species, quite unlike the shell figured by Sowerby.

4. VANIKORO PPLICATA (Récluz). B.M.

Narica plicata, Récluz: Rev. Zool., 1844, p. 7; Mag. de Zool., 1845, p. 40, pl. cxxviii, fig. 1.

Hab.—Ilias I., Philippines. Type in B.M.

This species is very distinct from the shell figured by Sowerby in the Conch. Icon., fig. 3, and the Thes. Conch., fig. 9, and copied by Tryon, pl. xxix, fig. 67. A comparison with Récluz's figure shows at a glance the great difference. Sowerby describes his shell as

“rather thin, with numerous thin ribs and spiral striæ; apex rather acuminate,” and this description agrees with his figure. On the contrary, the true *plicata* is rather solid, and is coarsely and obtusely plicate, the plicæ extending over the whole of the body-whorl. Moreover, the spire is less raised than in the shell figured by Sowerby and Tryon.

V. plicata was not described in the Proc. Zool. Soc. as stated by Sowerby.

5. VANIKORO GUERINIANA (Récluz). B.M.

Narica Gueriniana, Récluz: Proc. Zool. Soc., 1843, p. 139; Rev.

Zool., 1844, p. 7; Mag. de Zool., 1845, p. 43, pl. cxxviii, fig. 2.

Vanikoro Gueriniana, Sowerby: Conch. Icon., fig. 2; Thes. Conch., fig. 8 (bad); Tryon, fig. 62 (copy of Con. Icon.).

Hab.—Capul I., Philippines. Type in B.M.

Allied to *plicata*, but more widely umbilicated, with the last whorl less globose. Costæ rather similar, but more oblique. Melvill & Standen have recorded this species from Lifu, Loyalty Is.

6. VANIKORO MONTROUZIERI (Souverbie).

Narica Montrouzieri, Souverbie: Journ. de Conch., 1879, p. 136.

Hab.—Lifu, Loyalty Is.

This species, which has never been figured, is 11.5 mm. in length, rather strongly costate, and spirally striate upon and between the ribs. The umbilicus is deep, rather broadly funnel-shaped.

7. VANIKORO GAIMARDI, H. & A. ADAMS. B.M.

Vanikoro Gaimardi, H. & A. Adams: Genera Moll., vol. i, p. 375.

Vanikoro Quoyiana, A. Adams: ¹ Proc. Zool. Soc., 1853, p. 175, pl. xx, fig. 4.

Vanikoro Gaimardi, Sowerby: Conch. Icon., fig. 9; Thes. Conch., fig. 13; Tryon, fig. 91 (copy of Sowerby).

Hab.—Chusan. Type in B.M.

A. Adams described this species under the name *V. Quoyiana*, and not *Quoyi* as given by Sowerby and Tryon, nor was it a manuscript name as stated by the former. The species is quite distinct from *V. Orbignyana*, with which it has been united by Tryon.

8. VANIKORO FOVEOLATA (Montrouzier).

Narica foveolata, Montrouzier: Journ. de Conch., 1866, p. 138, pl. vi, fig. 6.

Vanikoro foveolata, Tryon: p. 70, pl. xxix, fig. 95 (copy of Montrouzier).

Hab.—Art I., Loyalty Is.

A small strongly cancellated species, about the size of *V. Gaimardi*, but with closer ribs and more spiral liræ.

¹ Watson's Bay, New South Wales (Angas, P.Z.S., 1867, p. 212).

9. *VANIKORO RUGATA*, A. Adams. B.M.

Vanikoro rugata, A. Adams: Proc. Zool. Soc., 1853, p. 174; Sowerby, Conch. Icon., figs. 8*a*, *b* (bad); Thes. Conch., fig. 22; Tryon, p. 68, fig. 63 (36 on plate by error; copy of Sowerby).

Hab.—Unknown. Type in B.M.

Erroneously stated by Sowerby to be a manuscript name. In his figures the spiral liræ are not numerous enough, so that in fig. 8*b* the shell appears to have a distinctly cancellated appearance, which is not really the case.

10. *VANIKORO EXPANSA*, Sowerby. B.M.

Vanikoro expansa, Sowerby: Journ. Malac., vol. viii (1901), p. 102, pl. ix, fig. 3.

Hab.—N.W. Australia, Holothuria Banks, and Baudin Island, 11–15 fathoms (J. J. Walker). Type in B.M.

Judging by a specimen in Mr. Melvill's collection labelled "Australia, Cox Collection," the shell described by Sowerby is merely the young of a species which attains a diameter of 14 mm. It has the remarkably strong cancellation of the spire as described and figured by Sowerby, but this, almost suddenly, alters upon the body-whorl into spiral delicate threads, at first crossed by fine oblique plicæ, which are somewhat nodulous upon the threads. These plicæ gradually die out, so that the last half of the whorl is merely finely spirally sculptured and crossed by fine oblique growth-striæ. Another specimen also in Mr. Melvill's collection, "ex Lombe Taylor Coll.," has a similarly sculptured spire, but the threads on the body-whorl are coarser. The umbilicus in this shell is wider than that of the other.

11. *VANIKORO DISTANS* (Récluz). B.M.

Narica distans, Récluz: Proc. Zool. Soc., 1843, p. 140; Rev. Zool., 1844, p. 7; Mag. de Zool., 1845, p. 45, pl. exxix, fig. 1.

Vanikoro distans, Sowerby: Conch. Icon., figs. 13*a*, *b*; Thes. Conch., p. 169, fig. 14; Tryon, p. 70, fig. 93 (copy of Conch. Icon.), fig. 13*b*.

Hab.—Bohol, Philippines. Type in B.M.

The remote oblique costæ, with the fine transverse striæ, are the distinguishing features of this species.

12. *VANIKORO SCALARINA*, Gould.

Vanikoro scalarina, Gould: Proc. Bost. Soc. Nat. Hist., 1859, vol. vii, p. 44; Otia, p. 110.

Hab.—Loo Choo (Gld.).

Known only by the description. A small species, 10 mm. in length, widely umbilicated, with remote elevated imbricating liræ, decussated with revolving threads.

13. VANIKORO ORBIGNYANA (Récluz).

Narica Orbignyana, Récluz: Proc. Zool. Soc., 1843, p. 140; Rev. Zool., 1844, p. 6; Mag. de Zool., 1845, p. 30, pl. cxxiv, fig. 2.

Vanikoro Cumingiana, Sowerby, *non* Récluz: Conch. Icon., figs. 7a-b; Thes. Conch., p. 169, fig. 24; Tryon, p. 70, figs. 90, 92 (*nec* 91, = *Gaimardi*).

Narica tricarinata, Récluz, MSS.: Sowerby, Conch. Icon., sp. 7 in synonymy.

Hab.—La Nouvelle Hollande, sur les côtés de l'île Maria. Can this be Maria I. of the Paumotus?

The shells figured by Sowerby as *V. Cumingiana* certainly belong to the present species.

14. VANIKORO CUMINGIANA (Récluz).

Narica Cumingiana, Récluz: Proc. Zool. Soc., 1843, p. 139; Rev. Zool., 1844, p. 6; Mag. de Zool., 1845, p. 27, pl. cxxiv, fig. 1 (not good).

Vanikoro clathrata, Tryon (*non* Récluz): p. 68, fig. 76 (copy of Récluz).

Hab.—Island of Samar, Philippines. Type in B.M.

Allied to *V. Orbignyana*, but possibly separable on account of its finer sculpture and less pronounced spiral ridges. It certainly can hardly be the same as *V. clathrata*, with which Tryon has united it. Melvill & Standen have quoted *V. Cumingiana* as a variety of *clathrata* from the Persian Gulf and Jask, on the border of the Mekran Coast.

15. VANIKORO SULCATA (D'Orbigny).

Narica sulcata, D'Orbigny: Hist. Cuba, Moll., vol. ii, p. 39, pl. xvii, figs. 26-27 (bad; not 28); Récluz, Mag. de Zool., 1845, p. 38, pl. cxxvi, fig. 2 (bad).

Vanikoro sulcata, Tryon: p. 69, pl. xxix, fig. 78 (copy of D'Orbigny, even to wrong colour).

Narica granulosa, Récluz: ¹ Proc. Zool. Soc., 1843, p. 140; Rev. Zool., 1844, p. 6; Mag. de Zool., 1845, p. 32, pl. cxxv, fig. 1.

Vanikoro granulosa, Sowerby: Conch. Icon., fig. 16; Thes. Conch., p. 168, fig. 4 (spire too high); Tryon, p. 68, fig. 74 (copy of Conch. Icon.).

Narica clathrata, Récluz: Mag. de Zool., 1845, p. 42, pl. cxxvii, fig. 1.

Vanikoro clathrata, Sowerby: Conch. Icon., fig. 14 (bad); Tryon, p. 68, fig. 73 (copy of Sowerby).

Hab.—Cuba, St. Lucia, Jamaica (D'Orb.); St. Vincent, St. Thomas (Brit. Mus.) for *sulcata*. Type in B.M.

Moluccas, New Holland, Lord Hood and Annaa Is., Zanzibar (Récluz), for *granulosa*; South Pacific? (Récluz) for *clathrata*. Type in B.M.

After a careful study of the descriptions and specimens of these three so-called species I have failed to discover any characters which

¹ From Persian Gulf and Hindarabi Island (Melvill & Standen); Port Jackson (Angas, as *granulata* (*sic*)).

will separate them, and I was at one time inclined to think that there must be some mistake in the localities assigned to *V. granulosa*. *N. sulcata* is undoubtedly West Indian. Tryon also united *V. clathrata* and *granulosa*, and respecting *V. sulcata* observes, "only distinguished from forms of the last species [*clathrata*] by locality." D'Orbigny's figure of *sulcata* is a very poor one, and coloured pale purplish, although he correctly describes the shell as "blanc uniforme." The shell he figures (fig. 28) as the young of this species has, in my opinion, nothing to do with it, but represents a species of the genus *Fossarus*. The spiral whorl of *sulcata* is smooth and convex, and the following ones are coarsely cancellated. Tryon has reproduced D'Orbigny's figure, and appears to have followed that author in considering it the very young of the present species.

In vol. ix of his Manual, pl. lii, fig. 6, he again reproduces the same figure of D'Orbigny's under the name of *Fossarus Orbignyi* of Fischer. The latter author gave this name to the fig. 28 on pl. xvii of D'Orbigny's work, recognizing that the shell there depicted was distinct from that represented by figs. 26 and 27 on the same plate.

V. Cumingiana, Récluz, and *V. semiplicata*, Pease, are not synonymous with *V. clathrata*, as suggested by Tryon, but quite distinct, and *Narica anomala*, C. B. Adams, which he thought was probably the same as *V. sulcata*, is the well-known type of the genus *Isapis*, H. & A. Adams.

In vol. ix of his Manual, p. 273, he cites this form under *Isapis* among the "unfigured" species. If he had looked at the original description of the genus,¹ he would have found that it was the only species quoted, and that a very good figure was given by the authors. More remarkable still is the fact that four years previously he had reproduced this figure in his "Structural and Systematic Conchology," vol. ii, pl. lxix, fig. 41.

16. VANIKORO GRANIFERA (Pease).

Narica granifera, Pease: Amer. Journ. Conch., vol. v, p. 78, pl. viii, fig. 13 (1869).

Vanikoro granifera, Tryon: p. 69, fig. 77 (copy of Pease, as synonym of *clathrata*).

Hab.—Jarvis Island, Polynesia.

In the figure of this species there is little trace of an umbilicus, although described by the author as "umbilico patulo." It must be very near *clathrata* (= *sulcata*) as suggested by Tryon.

17. VANIKORO SOLIDA, Sowerby. B.M.

Vanikoro solida, Sowerby: Conch. Icon., fig. 20; Thes. Conch., p. 168, fig. 1; Tryon, p. 70, fig. 88 (copy of Thesaurus).

Hab.—? Type in B.M.

¹ H. & A. Adams, Genera Recent Moll., vol. i, p. 320, pl. xxxiii, fig. 8.

A solid, finely granulated species, and peculiar on account of its very small umbilicus. The upper whorls are cancellated, as stated by Sowerby, but the radiating costæ are much stronger and more conspicuous than the spiral liræ upon and between them. The spiral liræ on the body-whorl are finely granose through being crossed by the oblique lines of growth, although this feature is not mentioned in the brief original description.

18. VANIKORO SEMIPLICATA, Pease. B.M.

Vanikoro semiplicata, Pease: Proc. Zool. Soc., 1860, p. 435; Sowerby, Conch. Icon., fig. 22 (bad); Thes. Conch., p. 169, fig. 5 (bad); Tryon, p. 68, fig. 75 (copy of Thesaurus, as synonym of *clathrata* = *sulcata*).

Hab.—Sandwich Is. Type in B.M.

This species is not "tenuiter decussata" as described and figured by Sowerby, but "ornamented with spiral raised striæ" (Pease), with still finer interstitial striæ, and the lines of growth are only faintly apparent. The umbilicus is moderately large and finely grooved within.

19. VANIKORO JAPONICA, Pilsbry. B.M.

Vanikoro japonica, Pilsbry: Cat. Marine Moll. Japan, p. 70, pl. i, fig. 5 (1895).

Hab.—Chikewa, Boshu, Japan.

A very distinct species, very narrowly perforate, with the last whorl "sculptured with many subequal spiral cords" (Pilsbry). Only the upper whorls are cancellated.

20. VANIKORO RÉCLUZIANA, A. Adams & Angas. B.M.

Vanikoro Récluziana, A. Ad. & Angas: Proc. Zool. Soc., 1863, p. 424; Angas, P.Z.S., 1867, p. 212; Sowerby, Conch. Icon., figs. 18a, b (spire too high); Thes. Conch., p. 170, fig. 2 (description and figure bad); Tryon, p. 70, fig. 87 (copy of Thesaurus).

Hab.—Port Jackson and Camp Cove, New South Wales. Type in B.M.

A thin, widely umbilicated species, very finely spirally striated, and with the spire strongly cancellated; the body-whorl is broad and the aperture rather patulate.

21. VANIKORO SIGARETIFORMIS (Potiez & Michaud).

Velutina sigaretiformis, P. & M.: Galerie Moll., vol. i, p. 508, pl. xxxv, figs. 21, 22 (bad).

Narica sigaretiformis, Récluz: Proc. Zool. Soc., 1843, pp. 137, 141; Mag. de Zool., 1845, p. 55, pl. cxxxii, fig. 3.

Hab.—New Holland.

The original figure of this species is quite useless, but that given by Récluz, from a specimen he received from M. Potiez, is a very good representation of the previous species (*V. Récluziana*) excepting that the spire does not show the cancellation. This, however, is accurately

described in the diagnosis, and I think there is little doubt that they are one and the same species. *Natica margaritacea*, Pot. & Mich., may be identical.

22. *VANIKORO IMBRICATA*, Pease. B.M.

Vanikoro imbricata, Pease: Proc. Zool. Soc., 1860, p. 435; Sowerby, Conch. Icon., fig. 17 (fair); Thes. Conch., p. 170, fig. 11; Tryon, p. 70, fig. 86 (copy of Thesaurus, as young of *V. acuta*).

Hab.—Sandwich Is. Type in B.M.

A thin, very widely umbilicated species, oblique, closely, obliquely, and finely lirate, with close spiral striæ between the liræ, neither visible to the naked eye. The strong plicæ within the umbilicus are quite evident, however, without the aid of a lens. *V. acuta*, with which this species was united by Tryon, has no oblique liræ, and is not of the same oblique form.

23. *VANIKORO STRIATA* (D'Orbigny). B.M.

Natica striata, D'Orbigny: Hist. Cuba, Moll., vol. ii, p. 40, pl. xvii, figs. 29, 31; Récluz, Rev. Zool., 1844, p. 47; Mag. de Zool., 1845, p. 57, pl. cxxxii, figs. 1, 2; Tryon, p. 69, pl. xxix, fig. 80.

Hab.—Cuba. Type in B.M.

I do not think *V. oxychone* and *V. vitrinæformis* of Mörch are synonymous with this species, as suggested by Tryon. Both are very small species possessing characters not found in *V. striata*.

24. *VANIKORO NATALENSIS*, n.sp. B.M.

Natica acuta, var. γ , Récluz: Mag. de Zool., 1845, p. 61.

Testa *V. striata* simillima, sed striis gracilioribus, anfractibus superioribus magis tenuiter cancellatis. Diam. maj. 10.5, alt. 10 mm.



Hab.—Scottsburgh (H. Burnup); Bluff, Durban (G. W. Westcott); Natal (Récluz).

It is with some hesitation that I have ventured to regard this form from Natal as distinct from the West Indian *V. striata*, d'Orb. The striation of the body-whorl certainly is finer, and the cancellation of the antepenultimate whorl is decidedly less coarse. Mr. Burnup's specimen, the dimensions of which are given above, consists of four and a half whorls. Of these the first, forming the minute apex, is smooth, reddish, convex, the next exhibits about ten fine radiating plicæ with fine spiral striæ between them, and the third has about fifteen much coarser radiating riblets. A few more distant faint plicæ are then visible upon the commencement of the penultimate whorl, and the last exhibits only oblique delicate lines of growth crossing the fine spiral striæ, which cover the entire surface, excepting in the rather open umbilicus. The extreme apex of this shell is more raised than that of *V. striata*. It is only by placing specimens side by side, and carefully examining them, that the differences pointed out between these two species can be satisfactorily appreciated.

25. VANIKORO ELATA, Sowerby. B.M.

Vanikoro elata, Sowerby: Conch. Icon., fig. 23; Thes. Conch., p. 170, fig. 6; Tryon, p. 69, fig. 84 (copy of Conch. Icon.).

Hab.—China Sea. Type in B.M.

A very narrowly perforate shell, very finely spirally striated, striæ crossed by faint lines of growth, not decussated as described by Sowerby. The first whorl is wanting, but the second exhibits two spiral keels. The columella is expanded and reflexed, partly concealing the umbilicus.

26. VANIKORO ACUTA (Récluz). B.M.

Narica acuta, Récluz: Rev. Zool., 1844, p. 47; Mag. de Zool., 1845, p. 60, pl. cxxxiii, figs. 1, 2.

Vanikoro acuta, Sowerby: Conch. Icon., figs. 21*a*, *b* (very coarse); Thes. Conch., p. 169, fig. 12; Tryon, p. 69, fig. 85.

Hab.—Lord Hood I.; Moluccas. Type in B.M.

An exceedingly finely spirally striated species, widely umbilicated, with rather strong growth-lines within the umbilicus. This species is quite distinct from *V. lamellosa*, D'Orb., and *V. imbricata*, Pease, which have been united with it by Tryon. Evidently he came to that conclusion without having specimens before him for comparison.

27. VANIKORO DISPARILIS, Deshayes.

Vanikoro disparilis, Deshayes: Maillard's Ile Réunion, vol. ii, p. 77, pl. xxxvi, figs. 15, 17; Tryon, p. 69, fig. 83 (copy of Deshayes, as synonym of *V. clathrata*).

Hab.—Ile Réunion.

Known to me only by the description and figure, but evidently, from its minutely decussated surface, it is quite distinct from *V. clathrata*, with which it is united by Tryon.

28. VANIKORO SOULEYETIANA (Récluz).

Narica Souleyetiana, Récluz: Mag. de Zool., 1845, p. 67, pl. cxvii (animal), pl. cxviii (anatomy), pl. cxxxv, fig. 1 (shell).

Hab.—Bohol, Philippine Is. (Récluz).

This species appears to be hardly separable from *N. acuta*, but certainly is very distinct from *V. ligata*, with which it is united by Tryon. Sowerby's figure of *Souleyetiana* represents *V. helicoidea*, and not the present species. Melvill & Standen state that it occurs at Lifu, Ceylon, and the Paumotus Islands.

29. *VANIKORO CUVIERIANA* (Récluz). B.M.

Narica Cuvieriana, Récluz : Mag. de Zool., 1845, p. 63, pl. cxxxiv, figs. 1, 2.

Vanikoro Cuvieriana, Sowerby : Conch. Icon., figs. 10a-b ; Thes. Conch., p. 169, fig. 23 (bad) ; Tryon, p. 70, fig. 94 (copy of Thesaurus).

Hab.—Probably South Pacific (Récluz). Type in B.M.

The thread-like lines are peculiarly raised, very fine and numerous, and rough to the touch, as described by Récluz. I am inclined to think that *V. rosea* is the young state of this species.

30. *VANIKORO ROSEA* (Récluz).

Narica rosea, Récluz : Proc. Zool. Soc., 1843, p. 140 ; Rev. Zool., 1844, p. 6 ; Mag. de Zool., 1845, p. 36, pl. cxxvi, fig. 1.

Vanikoro rosea, Sowerby : Conch. Icon., fig. 15 ; Thes. Conch., p. 169, fig. 3 (?) ; Tryon, p. 69, fig. 82 (copy of Conch. Icon.).

Hab.—Moluccas.

A very small species, or possibly only the young stage of the preceding. Sowerby's description in the Thesaurus appears to be correct, as far as it goes, but the figure he cites, fig. 15, evidently represents another species. His fig. 3, which is rose-tinted, is possibly a poor representation of *rosea*.

31. *VANIKORO DELICATA* (Pease).

Narica delicata, Pease : Amer. Journ. Conch., vol. iii, p. 282, pl. xxiii, fig. 25 (1868).

Vanikoro delicata, Tryon : p. 68 (as young of *ligata*), fig. 72 (copy of Pease).

Hab.—Paumotus.

Rather like *V. Cuvieriana* in form, but differently sculptured. It has no relationship whatever with *V. ligata*, of which Tryon considered it the young. *V. ligata* has the upper whorls distinctly plicate and never rose-tinted, and its form is more globose and the umbilicus much narrower.

32. *VANIKORO CRYPTOPHILA*, Carpenter. B.M.

Vanikoro cryptophila, Cpr. : Cat. Mazatlan Shells, p. 262.

Hab.—Mazatlan, West Mexico. Type in B.M.

This is a very small shell, and might well be the young stage of some larger species.

33. VANIKORO APERTA (Carpenter).

Narica aperta, Cpr.: Ann. Mag. Nat. Hist., 1864, vol. xiii, p. 477.

Hab.—Cape St. Lucas, Lower California.

Another very small form, only about 7 mm. in diameter.

34. VANIKORO INSCULPTA (Carpenter).

Narica insculpta, Cpr.: Proc. Zool. Soc., 1865, p. 280.

Hab.—Acapulco, West Mexico.

A very small form, about 7 mm. in diameter, allied to *V. aperta* and *V. cryptophila*. None of these three species has yet been figured.

35. VANIKORO LAMELLOSA (D'Orbigny). B.M.

Narica lamellosa, D'Orb.: Hist. Cuba, Moll., vol. ii, p. 41, pl. xvii, figs. 32–34.

Vanikoro lamellosa: Tryon, p. 69 (as young of *V. striata*), fig. 81 (copy of D'Orbigny).

Hab.—Cuba, Martinique, and Guadeloupe. Type in B.M.

Mörch¹ considered this species the young of *V. acuta*, and Tryon placed it as the probable early age of *V. striata*. Both conclusions are quite incorrect, as a comparison of specimens of all three forms at once clearly shows. Neither Mörch nor Tryon could have had shells for examination or they would not have made such mistakes. It may be regarded as a rather aberrant form for the genus.

36. VANIKORO OXYCHONE, Mörch.

Vanikoro oxychone, Mörch: Malak. Blätt., 1877, vol. xxiv, p. 94.

Hab.—St. Thomas, West Indies.

A small species, 4 mm. in height, differing from *V. lamellosa* in having a distinct keel circumscribing the umbilicus. Of course it has no relationship with *V. striata*, D'Orb., with which it is united by Tryon.

37. VANIKORO VINCENTIANA (Angas). B.M.

Adeorbis Vincentiana, Angas: Proc. Zool. Soc., 1880, p. 417, pl. xl, fig. 9; Tryon, Man. Conch., vol. x, p. 86, pl. xxx, fig. 100 (copy of Angas).

Hab.—Aldinga Bay, St. Vincent's Gulf, South Australia. Type in B.M.

This shell seems to me more closely related to *Vanikoro* than to *Adeorbis*. In form it approaches *V. Cuvieriana*, but it is more depressed. It has the kind of sculpture met with in most species of *Vanikoro*, that is to say, a different kind of ornamentation on the spire than upon the body-whorl. The latter is very finely spirally striated, and the antepenultimate whorl is distinctly (under the lens) plicate. This is not referred to by Angas, probably having been overlooked, as the type, presented by him to the British Museum, is not in very fresh condition.

¹ Malak. Blätt., 1877, vol. xxiv, p. 94.

The following species are referable to other genera, or are beyond recognition:—

1. *Vanikoro semisoluta*, Sowerby: Conch. Icon., fig. 24. I consider that this species would be better located in the genus *Fossarus*. Type in B.M.
2. *Narica tuberosissima* (Montagu), Récluz: P.Z.S., 1843, p. 136. This may be the very young stage of *V. sulcata*, but it is very uncertain.
3. *Narica glaberrima* (Brown), Récluz: P.Z.S., 1843, p. 136. This appears to be a species of *Neritina*.
4. *Narica Mauritiæ*, Récluz: Mag. de Zool., 1845, p. 19, pl. cxx; Chenu, Man Conch., vol. i, p. 331, figs. 2403, 2405. Probably merely the embryo of something.
5. *Narica* (?) *anomala*, C. B. Adams: Contributions to Conch., p. 109. Is the type of *Isapis*. B.M.
6. *Narica ovoidea*, Gould: Boston Journ. Nat. Hist., 1853, vol. vi, p. 380, pl. xiv, fig. 10.
Narica (Isapis) ovoidea, Gould: Otia Conch., p. 185.
As intimated by the author in his "Otia," this species belongs to *Isapis*, in which genus, under the *unfigured* (!) forms, it appears in Tryon's work.
7. *Narica scalaris*, Récluz: Liénard, Cat. Faune Mal. Maurice, p. 47 (1877). Récluz has not described such a species.
8. *Vanikoro gracilis*, Brazier: Proc. Linn. Soc. N.S.W., 1894, p. 169, pl. xiv, fig. 4.
This species has been shown by Hedley to belong to the genus *Couthouyia* (op. cit., 1900, p. 506, pl. xxvi, fig. 13).